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Calvey

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(54) **FOLDABLE AND PORTABLE FURNITURE ASSEMBLY**

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(58) **Field of Search** 297/16.1, 16.2, 297/17, 32, 41, 55, 56, 258.1, 271.5, 271.6, 272.1, 20

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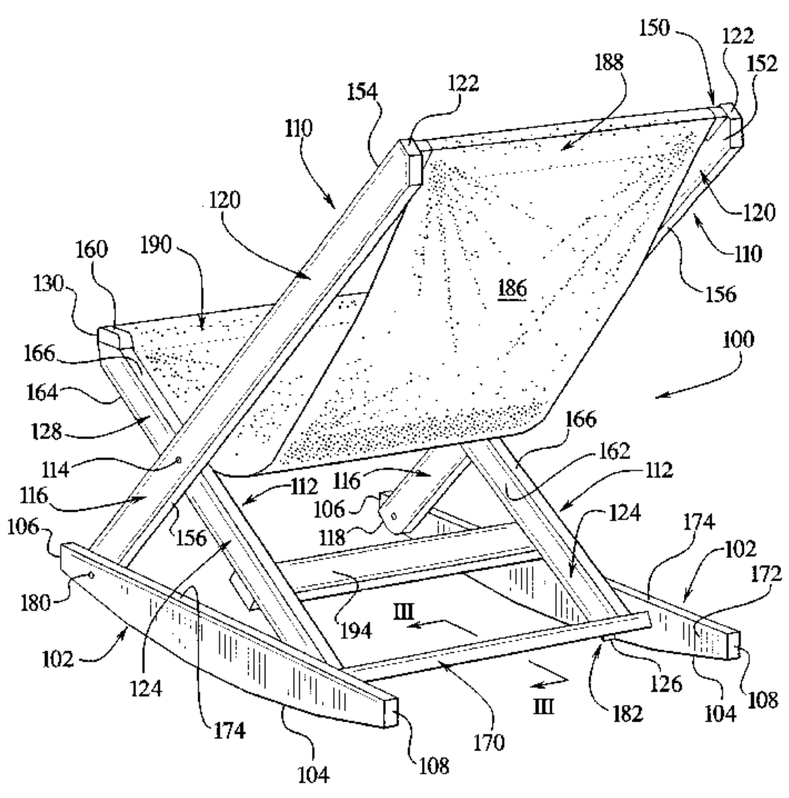
(57) **ABSTRACT**

A portable furniture assembly has a pair of opposed and spaced apart scissor assemblies. A stop mechanism is provided to retain a pair of scissor structures of the portable furniture assembly in a set-up condition and yet permit easy release of the stop mechanism to permit folding of the furniture assembly for transport. A foldable and portable chair has a flexible sling suspended between two scissor assemblies to define a seat and a back for the chair. The portable chair also has two bottom rails connected to front supports of the scissor assemblies via pivots. Rear supports of the scissor assemblies are removably connected to the bottom rails at the stop mechanism to retain the portable chair in a set-up condition and yet permit the chair to be folded to a completely flat or folded condition.

15 Claims, 7 Drawing Sheets



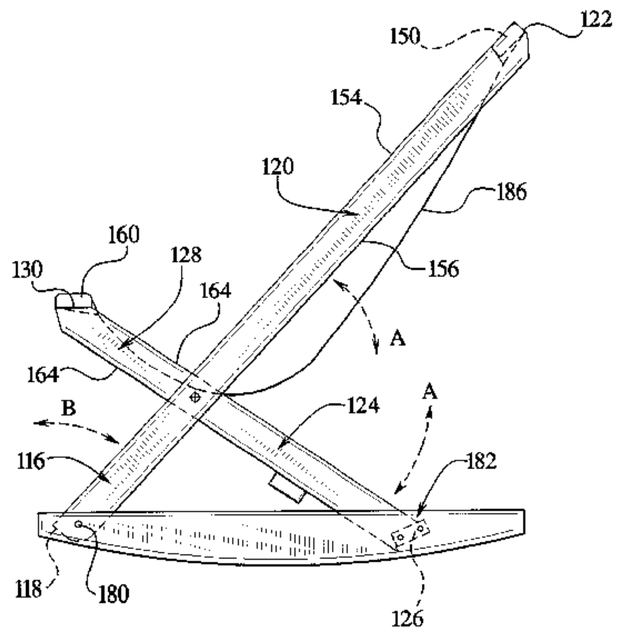


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FIG.1

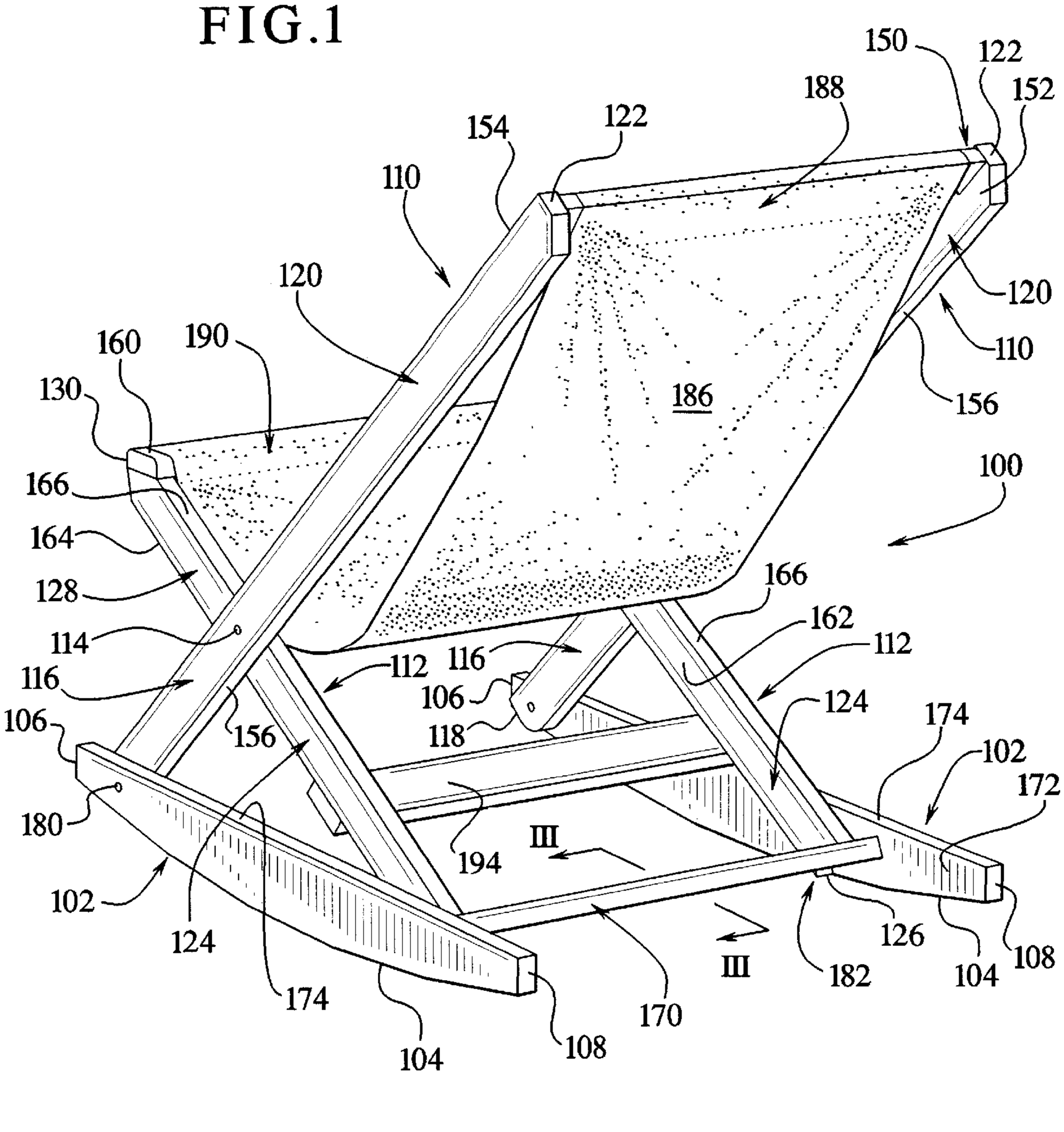
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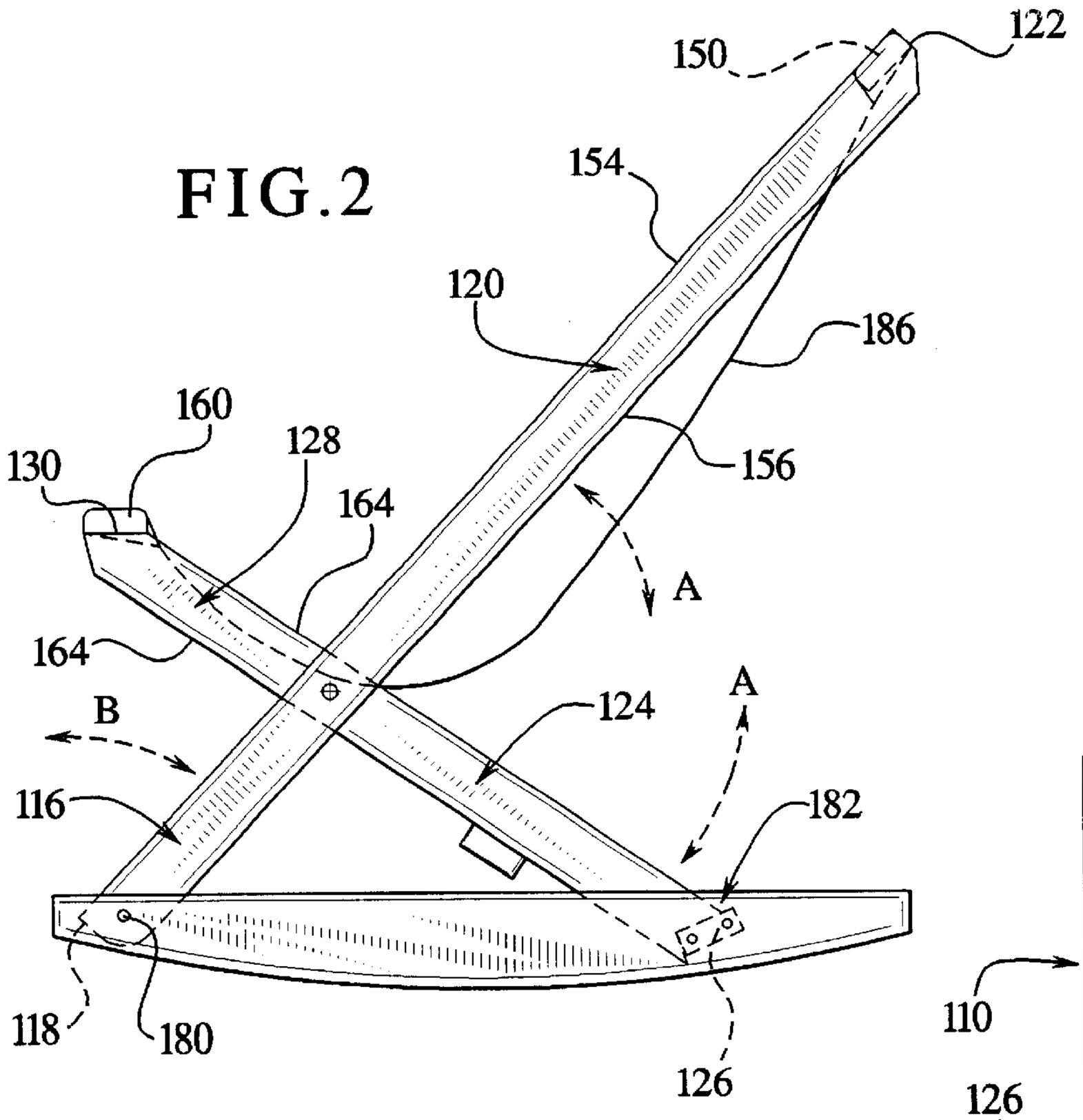
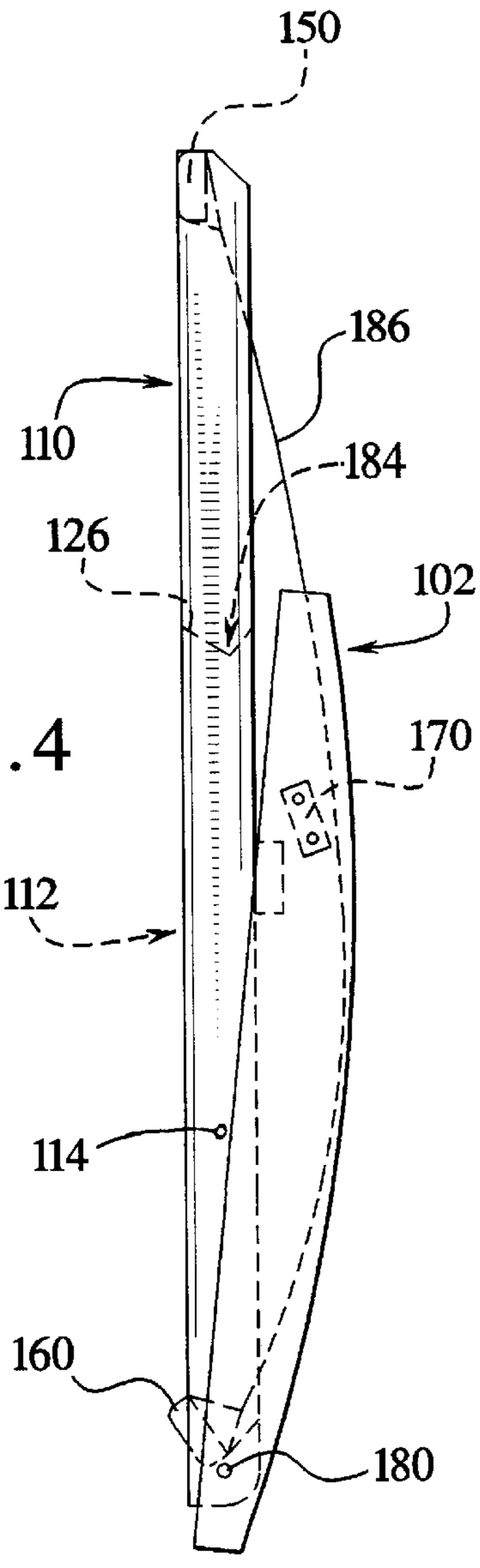
FIG.2





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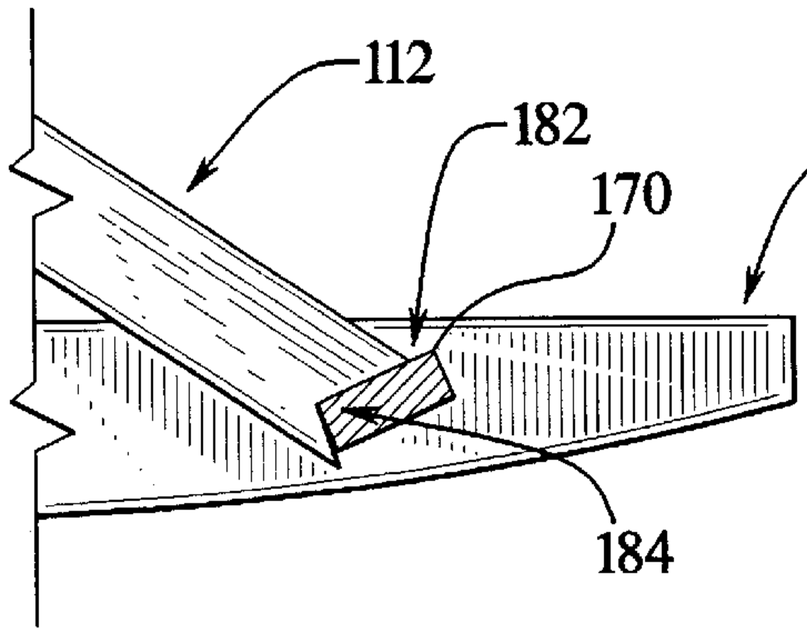

FIG.3

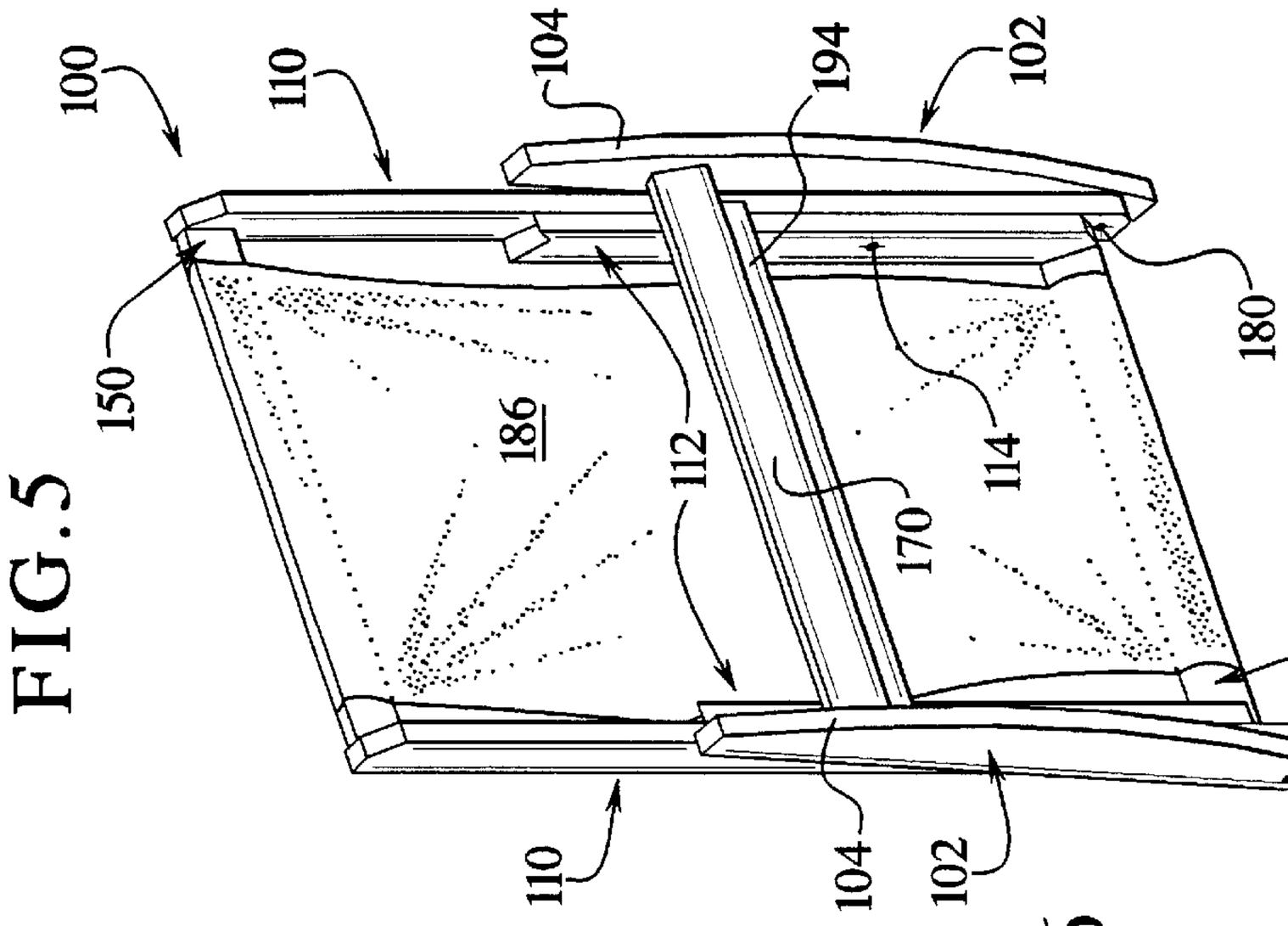
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FIG.5

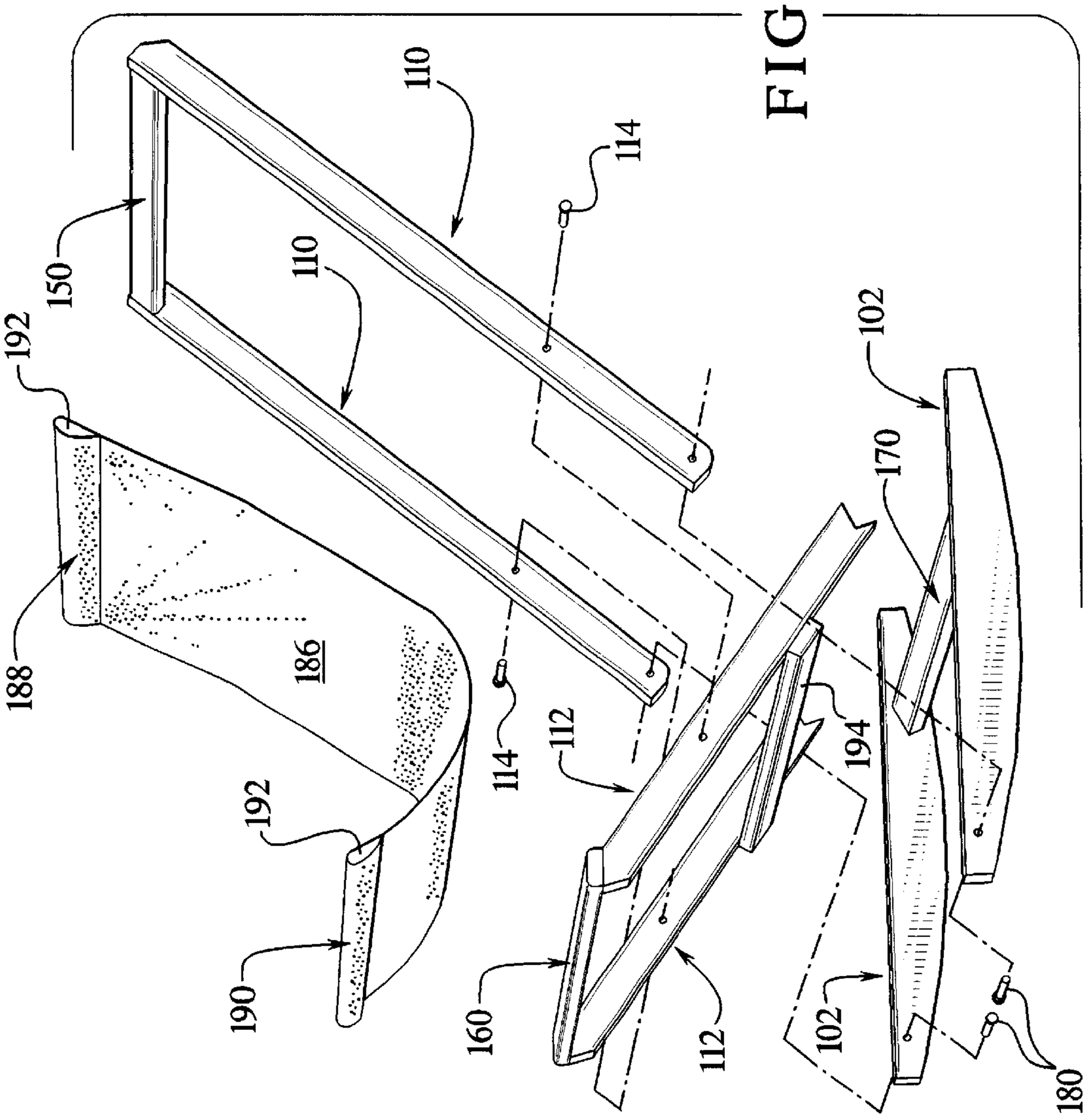
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FIG.6

FIG.7

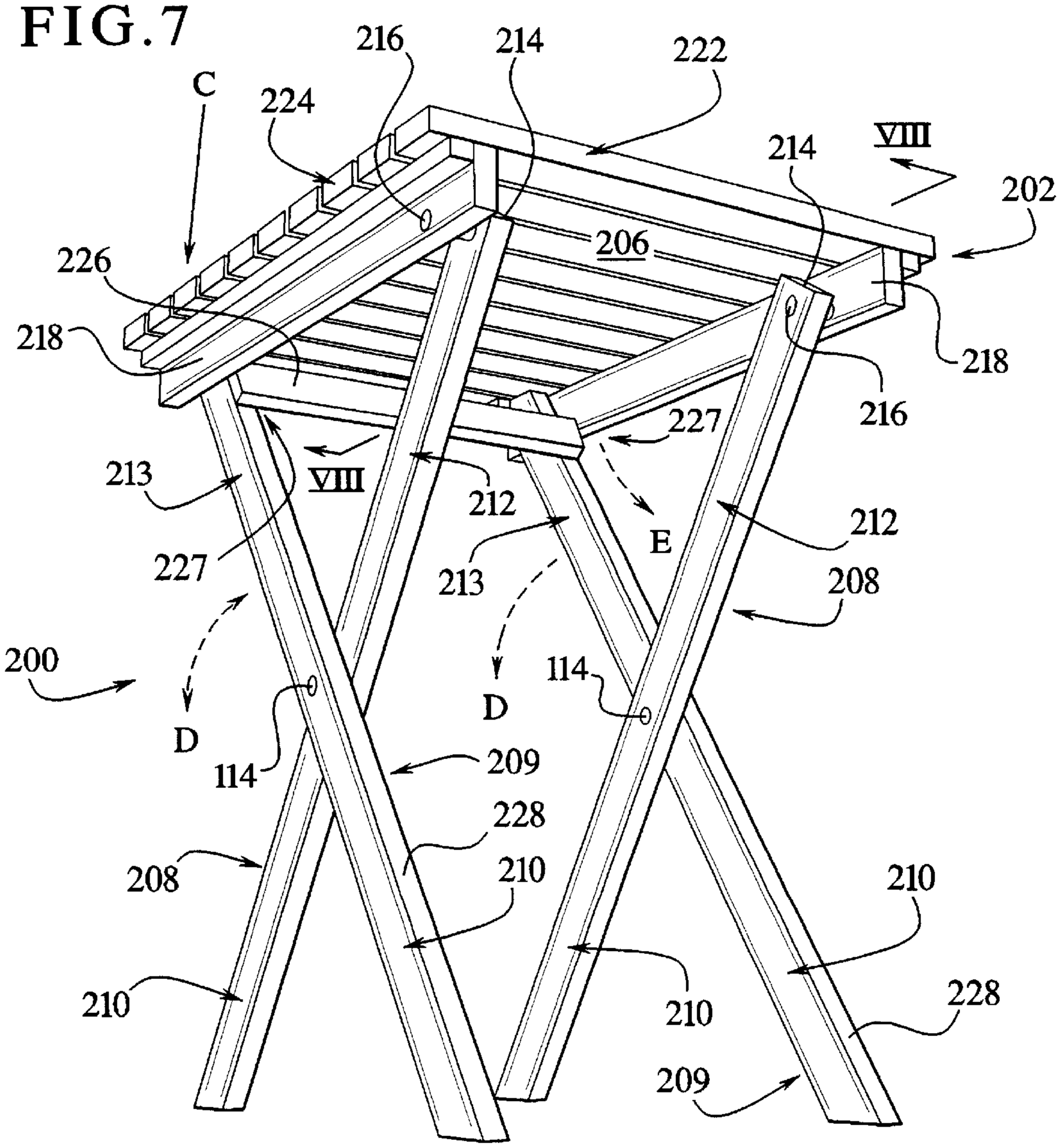
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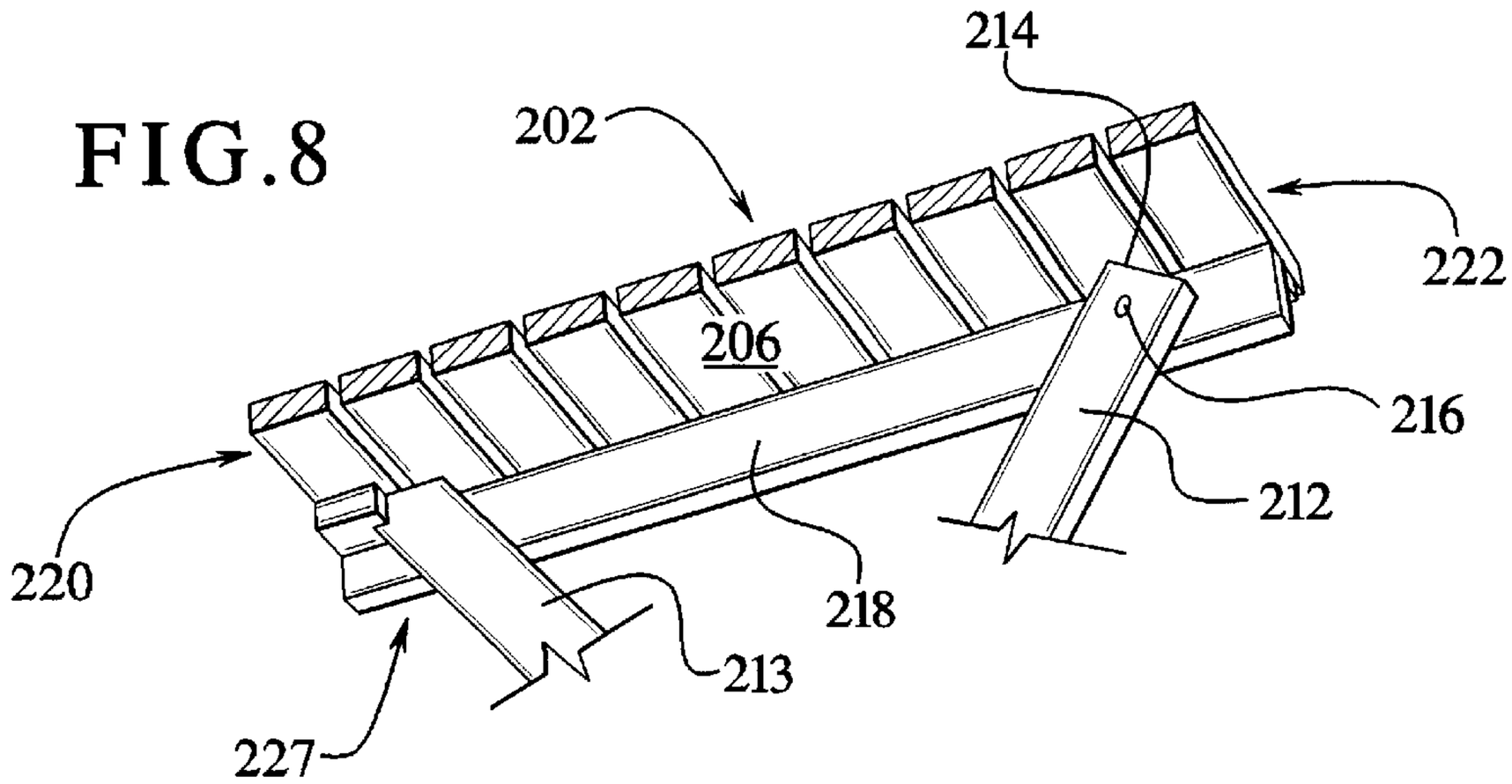
FIG.8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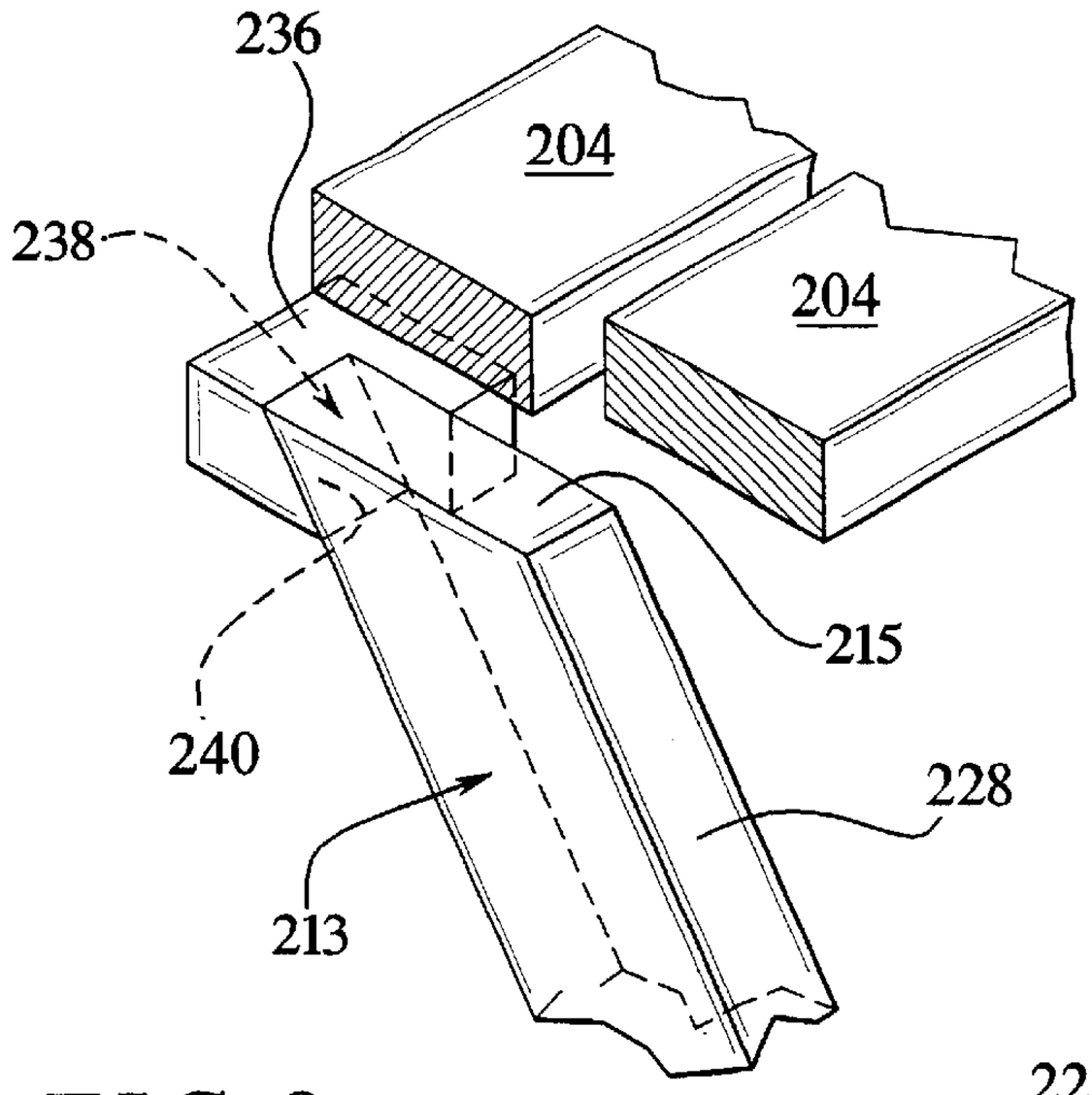
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FIG.9

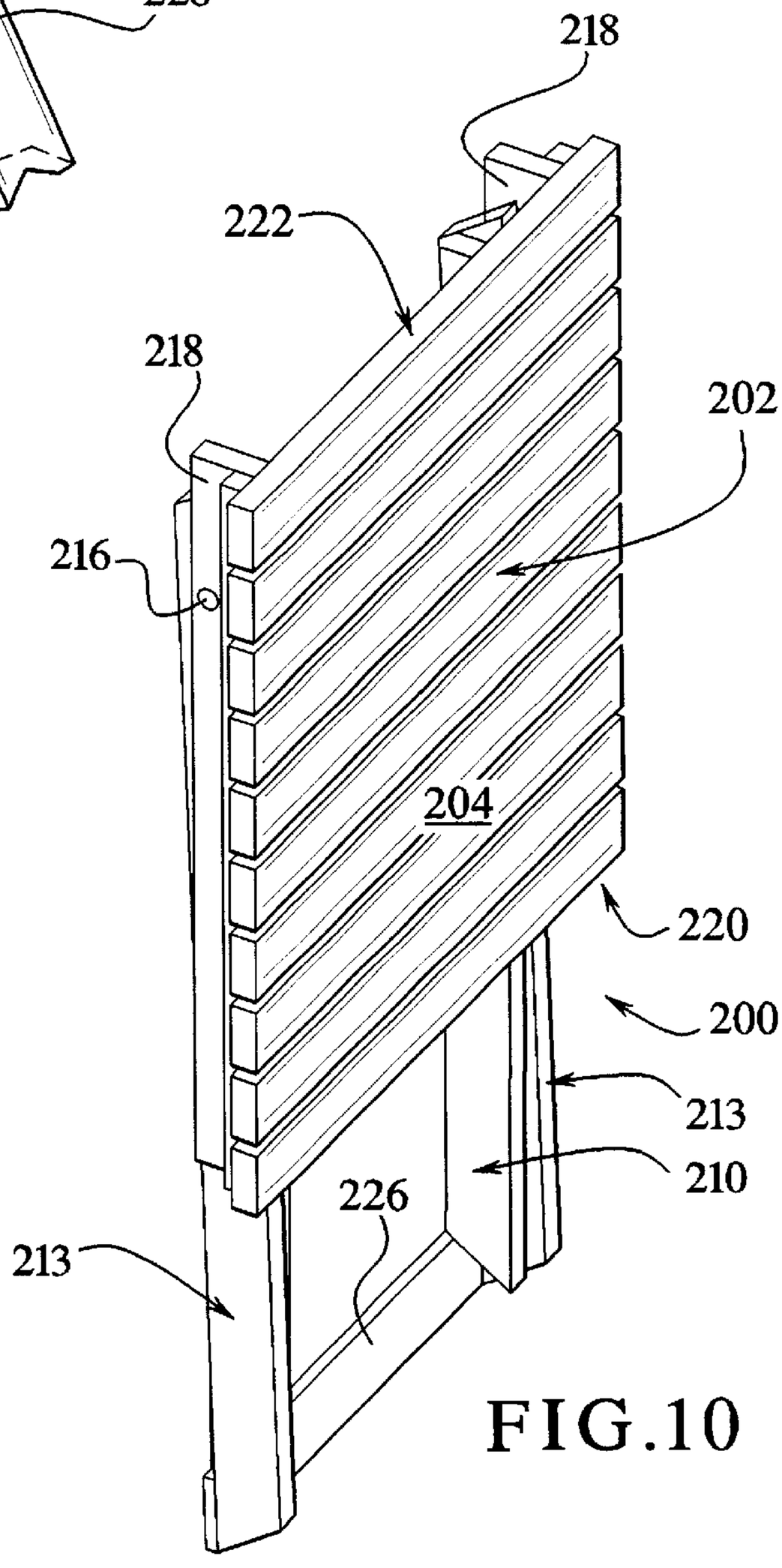
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FIG.10

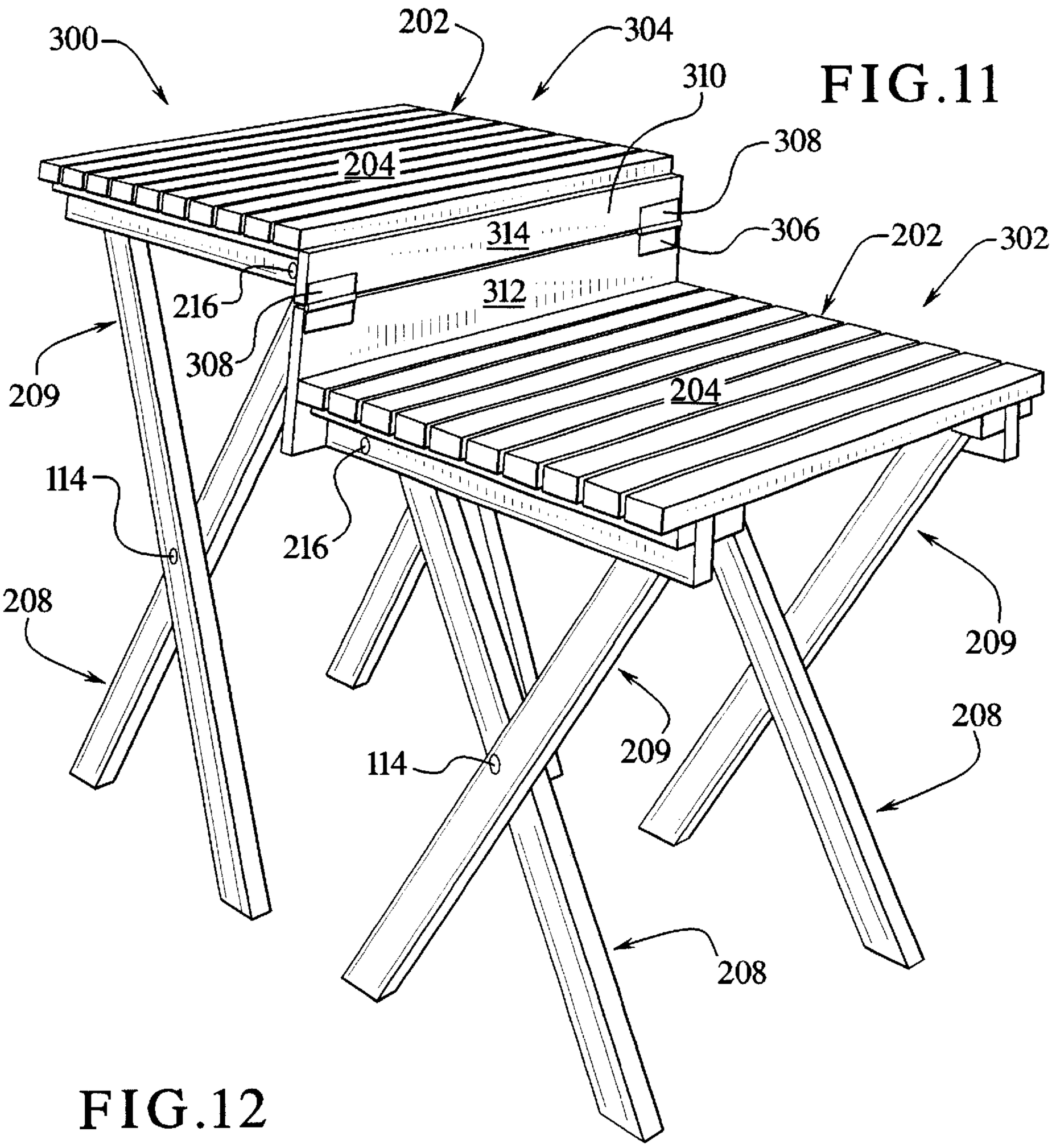
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FIG.11

FIG.12

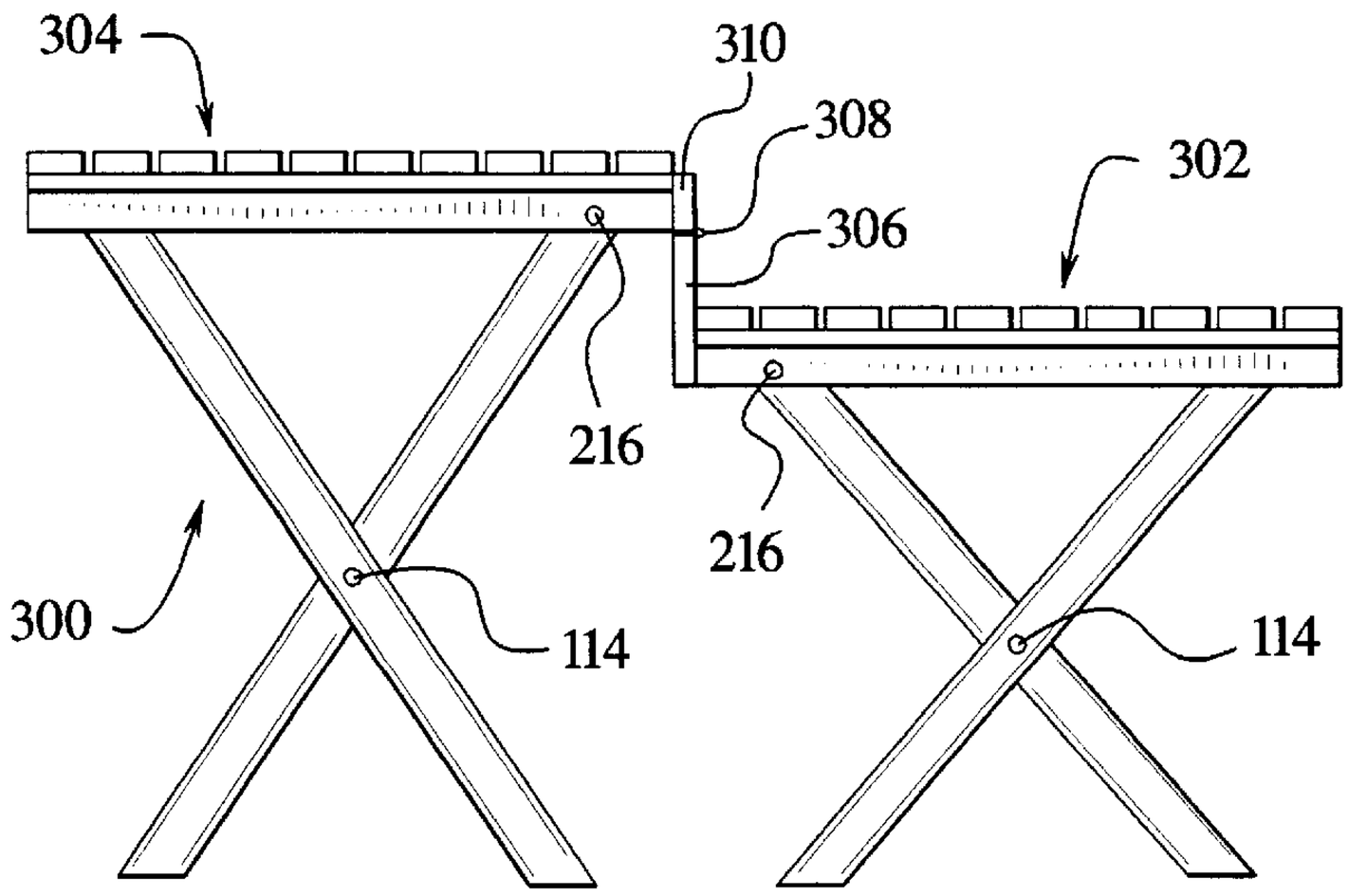
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FIG.13

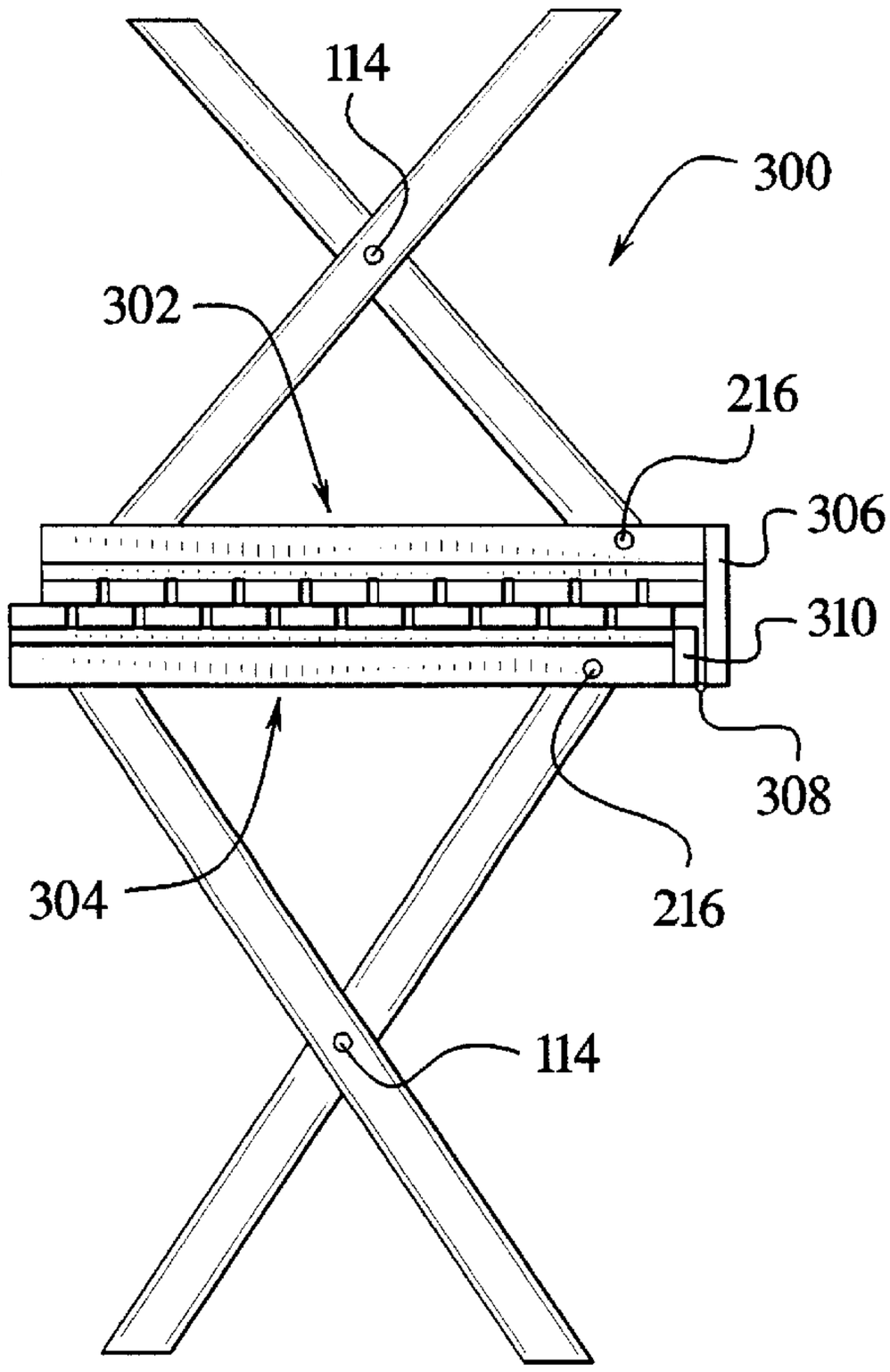
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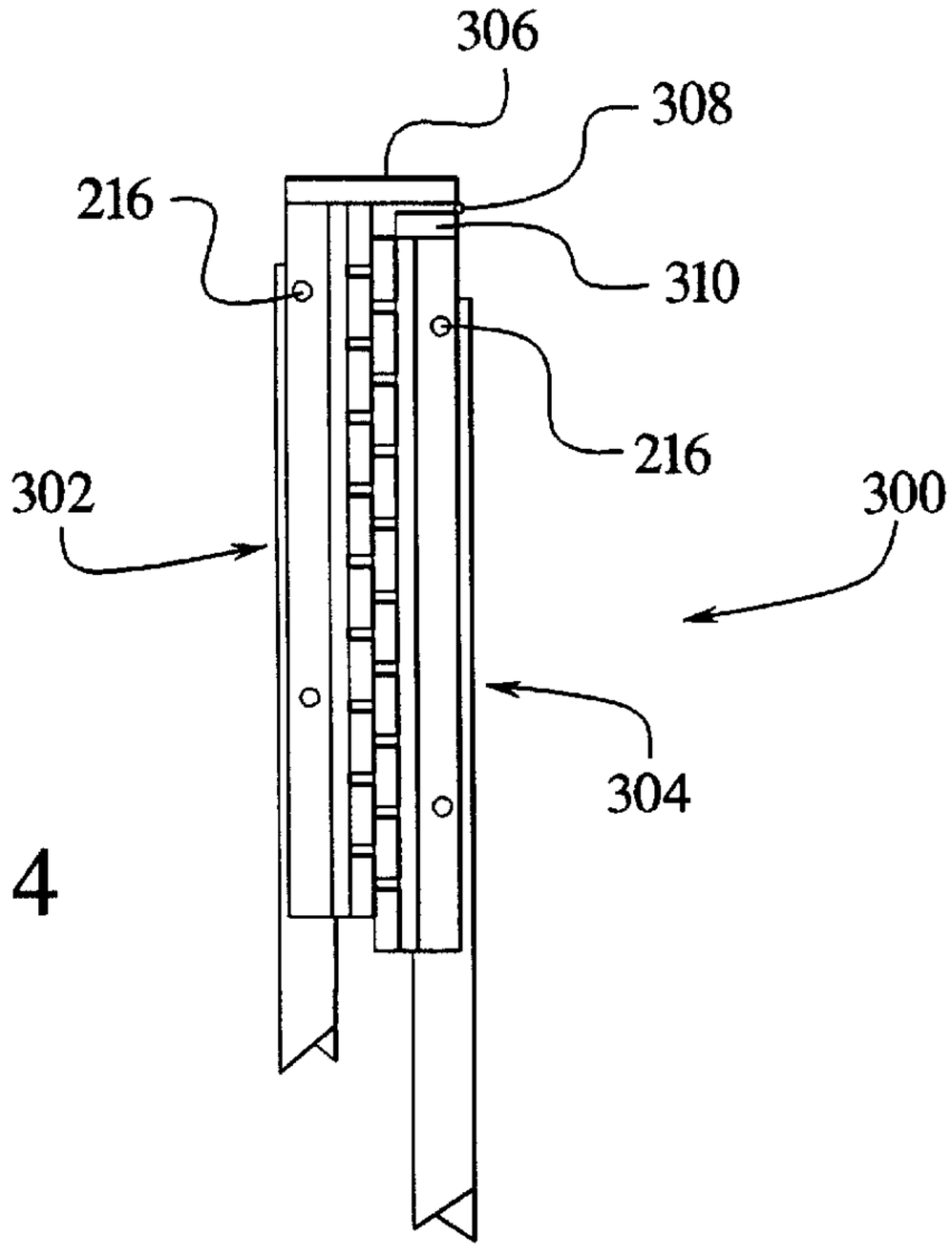
FIG.14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FOLDABLE AND PORTABLE FURNITURE ASSEMBLY

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates generally to portable folding furniture, and more particularly to a furniture piece that can be collapsed to a folded condition rendering the structure portable and un-folded to a set-up condition providing a sturdy piece of furniture.

2. Description of the Related Art

Portable folding chairs and tables are known in the art and are provided in many different forms and manufactured from many different materials. Folding metal chairs are known that have a tubular frame with front legs that extend upward and rearward wherein a metal sheet is attached to the upper ends of the legs defining a backrest. The rear legs of the chair typically extend upward and forward and attach to the front legs in scissor-like fashion at a leg pivot. The rear legs connect to a separate seat structure also typically in the form of a formed metal sheet. These types of chairs have a thin metal bar interconnecting the front and rear leg on each side of the chair below the leg pivot. The thin bar also has an intermediate pivot so that the bar can be bent in half when the chair is folded together. Folding and unfolding of the chair requires first manually lifting on the pivot of the thin bar.

There are many other types of folding chairs known in the art. The majority of these constructions are relatively complex and include a number of separate components to complete the chair and to support the chair in a set-up condition. There are also conventional folding table constructions which have four legs and a table top. Each leg folds down from being parallel with one edge of the tabletop to being perpendicular to the table top. These types of folding tables are commonly known as card tables.

Folding sling chairs are also known in the art and utilize a number of structural components which can be folded and unfolded to construct a piece of furniture or make the furniture portable. These types of chairs utilize a piece of fabric suspended by its two opposite ends. The single piece of fabric forms both a chair seat and chair backrest when a person sits in the chair with their weight supported by the fabric sling. Examples of sling chairs are disclosed in U.S. Pat. Nos. 5,718,473 and 5,054,849.

Folding rocking chairs are also known in the art and also typically include a multitude of separate components that form the chair assembly. Foldable rocking chairs sometimes include bottom rails that have curved bottom surfaces on which an individual can rock. An example of such a folding rocking chair is disclosed in U.S. Pat. No. 5,560,675. An even more elaborate foldable rocking chair construction is disclosed in U.S. Pat. No. 5,253,921 and includes a number of sliding and pivoting elements interconnected to one another. The bottom rails sit on the ground and remain stationary while other elements of the chair produce the rocking feature.

SUMMARY OF THE INVENTION

What is needed is an inexpensive, sturdy and compact folding furniture piece that can be taken along when traveling and utilized just about anywhere. What is also needed is a furniture piece that is lightweight, easy to assemble, simple to manufacture, and requires a minimum number of moving parts and yet provides a sturdy construction.

The present invention is directed to a portable furniture assembly such as a chair or a table that utilizes a scissor construction that is foldable and yet provides a very sturdy, stable piece of furniture. In one embodiment of the invention, a portable chair is movable between at least a folded condition and a set-up condition. The portable chair has two spaced apart and opposed bottom rails each having a bottom surface, a forward end and a rear end. The portable chair also has two spaced apart and opposed leg scissors. Each leg scissor has a long support and a short support that intersect one another and are pivotally attached to one another at a leg pivot. The long support of each leg scissor defines a front leg section below the leg pivot and terminates at a bottom end. Each long support also defines a seat back section above the leg pivot and terminates at a top end. The short support of each leg scissor defines a rear leg section below the leg pivot that terminates at a lower end and a seat front support above the leg pivot that terminates at an upper end. The portable chair also has a backrest link interconnecting the seat back sections of the long supports, a seat rest link interconnecting the seat front sections of the short supports, and a rail link interconnecting the bottom rails near the rear ends. A front leg joint pivotally connects the bottom ends of each front leg section to a corresponding bottom rail near the forward end. A flexible sling is suspended at its opposite ends and defines both the chair seat and chair backrest. The lower ends of the short supports are held fixed by a stop mechanism when the chair is in the set-up condition.

In one embodiment, the backrest link and the two long supports are each a discrete separate structure with the backrest link connected to the two long supports. In another embodiment, the backrest link and the two long supports are integrally formed as a single unitary structure.

In one embodiment, the seat rest link and the two short supports are each a discrete separate structure with the seat rest link connected to the two short supports. In another embodiment, the seat rest link and the two short supports are integrally formed as a single unitary structure.

In one embodiment, the rail link and the two bottom rails are each a discrete separate structure with the rail link connected to the two bottom rails. In another embodiment, the rail link and the two bottom rails are integrally formed as a single unitary structure.

In one embodiment, the bottom surfaces of the bottom rails are arcuate and define a rocking surface thereby forming a rocking portable chair.

In one embodiment, each of the links and supports are molded from a thermoplastic material. In another embodiment, each of the links and supports are fabricated from wood.

In one embodiment, the flexible sling is a fabric sling with one end suspended from the backrest link and the other end suspended from the seat rest link.

In one embodiment, the stop mechanism is provided by both the rail link and the lower ends of the short supports wherein the lower ends have a contoured notch formed thereon that corresponds to and abuts against the rail link when the chair is in the set-up condition.

In another embodiment of the invention, a portable table is movable between at least a folded condition and a set-up condition. The portable table has a tabletop with a top surface and a bottom surface. The portable table also has two opposed and spaced apart leg scissors that depend generally from below the bottom surface of the tabletop. Each of the leg scissors has two elongate supports that intersect one

another and are pivotally attached to one another at a leg pivot. Each of the leg scissors defines two lower leg sections wherein one lower leg section of each scissor is defined below the leg pivot on each elongate support. Each of the elongate supports of the leg scissors also defines an upper support section that terminates at a top end. One upper support section of each leg scissor is defined above the leg pivot on each elongate support. The portable table has at least one tabletop joint that pivotally connects the top ends of two corresponding of the upper support sections to the tabletop, one on each leg scissor. At least one stop mechanism is provided that fixes the top end of each of the other two opposed upper support sections to the tabletop when the table is in the set-up condition.

In another embodiment of the invention, a portable table is provided that has two separate top surfaces at different height levels. The table includes two separate portable table sections, each similar to the table described above. A first section has a lower surface provided by a tabletop carried on a first pair of leg scissors each defined by first elongate supports. A second section has a higher surface provided by a tabletop carried on a second pair of leg scissors having second elongate supports that are longer than the first elongate supports. The back edges of the two tabletops are interconnected by an interconnecting panel with a first piece of the interconnecting panel affixed to the back edge of the first tabletop and a second piece of the interconnecting panel affixed to the second tabletop. The two pieces of the interconnecting panel are hingedly attached to one another. The lower first tabletop can be pivoted about the hinges so that its top surface abuts the top surface of the second tabletop. The leg scissors of the two sections can then be folded generally parallel to one another.

These and other objects, features and advantages of the present invention will become apparent upon a review of the written description and the corresponding drawing figures. The exemplary embodiments of the present invention described and shown herein are provided in order to illustrate and not to limit the permissible scope of the present invention. Changes and modifications can be made to the embodiments described herein and yet fall within the scope of the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

The following drawing figures represent a number of permissible embodiments of the present invention. Like reference numerals provided in the drawings represent like components in each embodiment of the invention and, wherein:

FIG. **1** illustrates a rear perspective view of a portable chair in a set-up condition and constructed in accordance with one embodiment of the present invention;

FIG. **2** illustrates a side view of the portable chair of FIG. **1**;

FIG. **3** illustrates a fragmentary partial sectional view taken along line III—III of FIG. **1**;

FIG. **4** illustrates a side view of the portable chair of FIG. **1** in a completely folded condition;

FIG. **5** illustrates a perspective view of the portable chair of FIG. **1** in a completely folded condition;

FIG. **6** illustrates an exploded view of a portable chair constructed in accordance with another embodiment of the present invention;

FIG. **7** illustrates a perspective view of a portable table in a set-up condition and constructed in accordance with another embodiment of the present invention;

FIG. **8** illustrates a partial fragmentary sectional view taken along line VIII—VIII of FIG. **7** showing a portion of the table in a set-up condition;

FIG. **9** illustrates a partial fragmentary sectional view of an alternative construction of the portable table of FIG. **7**;

FIG. **10** illustrates the portable table of FIG. **7** in a completely folded condition;

FIG. **11** illustrates a perspective view of a portable table constructed in accordance with another embodiment of the present invention;

FIG. **12** a side view of the portable table of FIG. **11**;

FIG. **13** illustrates a side view of the portable table of FIGS. **11** and **12** in a partially folded condition; and

FIG. **14** illustrates the portable table of FIGS. **11–13** in a completely folded condition.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention is generally directed to a foldable furniture structure such as a portable chair or a portable table, respectively illustrated in FIGS. **1** and **7**. The concept of the present invention is to provide a very sturdy and yet simple construction for a foldable piece of furniture that can be easily broken down and set up and can also be easily transported in its folded condition. The present invention provides for a simple interlock between two portions of the furniture structure in order to create the sturdy construction and permit simple folding of the furniture.

Referring now to FIGS. **1–6**, a portable chair is illustrated and is constructed in accordance with at least two embodiments of the present invention. FIGS. **1** and **2** illustrate a portable chair **100** shown in a set-up condition. The portable chair **100** is movable between at least a completely folded condition illustrated in FIGS. **4** and **5** and the set-up condition.

The portable chair **100** has two spaced apart and opposed bottom rails **102** each having a bottom surface **104**, a forward end **106** and a rear end **108**. The portable chair **100** also has a pair of spaced apart and opposed leg scissor assemblies wherein each leg scissor assembly has an intersecting long support **110** and a short support **112**. The long support **110** and short support **112** are pivotally attached to one another at a leg pivot **114** of each leg scissor assembly. The leg pivot **114** permits the long support **110** and short support **112** to rotate relative to one another about the leg pivot. The long support **110** of each leg scissor assembly defines a front leg section **116** below the leg pivot **114**. Each front leg section **116** terminates at a bottom end **118** of each long support **110**. The long support **110** of each leg scissor assembly also defines a seat back section **120** above the leg pivot **114**. Each seat back section **120** terminates at a top end **122** of the long support **110**.

The short support **112** of each leg scissor assembly defines a rear leg section **124** below the leg pivot **114**. Each rear leg section **124** terminates at a lower end **126** of the short supports. The short support **112** of each leg scissor assembly also defines a seat front support **128** above the leg pivot **114**. Each of the seat front supports **128** terminates at an upper end **130** of the short supports.

The bottom ends **118** of the front leg sections **116** and the lower ends **126** of the rear leg sections **124** rest on a ground or support surface when the portable chair **100** is in use in he set-up condition.

The portable chair **100** also has a backrest link or cross member **150** that interconnects the seat back sections **120** of

the long supports **110**. In one embodiment, the backrest link **150** is disposed between the seat back sections **120** and abuts at its opposite ends against inside surfaces **152** of the seat back sections. The location of the backrest link can vary without departing from the scope of the present invention but in the present embodiment is illustrated adjacent the top ends **122** of the long supports **110**. The seat back link **150** can alternatively be disposed somewhere between the top ends **122** and the leg pivot **114** and fall within the scope of the invention. More than one backrest link **150** can also be utilized. Though the backrest link **150** in the present embodiment is illustrated as being perpendicular to the seat back sections **120**, the backrest link or links **150** can alternatively be disposed at angles that are not normal or perpendicular to the seat back sections **120**. The backrest link or links **150** can also be curved, although the link **150** is shown as a linear cross member in the present embodiment. The backrest link **150** can alternatively be adhered to front surfaces **154**, or to back surfaces **156** of the seat back sections **120** and fall within the scope of the present invention. In another alternative construction, the backrest link **150** can be connected directly on top and abutting against the top ends **122** of the long supports **110**.

The portable chair **100** also incorporates a seat rest link or cross member **160** that interconnects the seat front sections **128** of the short supports **112**. Again, the number, orientation, shape, and attachment of the seat rest link **160** can vary considerably without departing from the scope and spirit of the present invention. For example, the seat rest link **160** can be attached and abut directly to the upper ends **130** of the short supports **112** as illustrated or can alternatively attach to inside surfaces **162**, front surfaces **164** or back surfaces **166** of the short supports **112** if desired.

The portable chair **100** also includes a rail link or cross member **170** that interconnects inside surfaces **172** of the bottom rails **102** near the rear ends **108**. Again, the bottom rails **102** can be interconnected by more than one rail link **170**. Additionally, the rail link **170** can be connected to top surfaces **174**, or bottom surfaces **104**, without departing from the spirit and scope of the invention. The rail link or links **170** can also vary in shape.

The portable chair **100** also includes a front leg joint **180** that pivotally connects each front leg section **116** of the long supports **110** near the bottom ends **118** to a corresponding one of the bottom rails **102** near the respective forward ends **106**. The front leg joints **180** permit rotational movement about the joints between the bottom rails **102** and the long supports **110**.

As shown in FIG. **3**, the portable chair **100** also includes at least one stop mechanism **182**. In the present embodiment, the lower ends **126** of the short supports **112** abut against the rail link **170** when the portable chair **100** is in the set-up condition. The stop mechanism **182** of this embodiment is formed by the rail link **170** and lower end **126** of each short support **112**. The one or more stop mechanisms **182** can take on any number of configurations and constructions without departing from the spirit and scope of the invention. In the present embodiment, the rail link **170** serves as a stop surface against which the lower ends **126** of the short supports **112** rest. In this embodiment, the lower ends **126** include a notched cutout **184** with a contour that corresponds to the shape of the rail link **170**. The notch or cutout **184** in the lower ends **126** combines with the rail link **170** to form each stop mechanism **182**.

Alternatively, separate additional elements can be added to either the bottom rails **102** or to the rear leg sections **124** in order to form a part of the stop mechanism **182**. In another alternative, integral protrusions or cutouts can be provided on the bottom rails, the rear leg sections, or both to form an appropriate stop mechanism that will releasably but securely hold the rear leg sections **124** in a fixed position when the chair is in the set-up condition.

The portable chair **100** also includes a flexible sling **186** in the form of a sheet of flexible material. The flexible sling **186** is suspended in an appropriate manner from its opposite ends **188** and **190** between the seat back sections **120** of the long supports **110** near the top ends **122** and the seat front sections **128** of the short supports **112** near the upper ends **130**. The suspended sheet of material **186** defines both a seat cushion and a seat back of the portable chair **100**.

The flexible sling **186** can be formed from virtually any suitable material such as a cloth or fabric material or a durable and flexible rubber or plastic composition. The flexible sling **186** is intended to hang somewhat loosely between its opposed ends **188** and **190** so that a person can sit in the chair **100** comfortably and be fully supported by the material.

In the embodiment illustrated in FIGS. **1–6**, the flexible sling **186** is connected to and suspended from the backrest link **150** and the seat rest link **160** by the opposed ends **188** and **190**, respectively. In one embodiment the flexible sling **186**, such as a cloth or fabric material is wrapped at least once around the links **150** and **160** and fastened or adhered thereto by a suitable adhesive or fastener such as a number of staples. In an alternative embodiment shown in FIG. **6**, the flexible sling **186** can include a loop **192** of the sling material formed on each of the opposed ends **188** and **190** through which the links **150** and **160** are received prior to assembly of the chair **100**. In another alternative embodiment, the ends **188** and **190** of the flexible sling **186** can be adhered or otherwise fastened to a portion of the supports **110** and **112** or to the links **150** and **160** by discrete elements such as rope, string, hog rings or the like. The manner in which the flexible sling **186** is adhered to the chair **100** can vary considerably within the scope of the present invention.

In use, the portable chair **100** can be manipulated by pivoting the long and short supports **110** and **112** about the leg pivots **114** in the direction of the arrows "A". The long supports are pivoted about the front leg joints **180** relative to the bottom rails **102** in the direction of the arrows "B". FIGS. **1** and **2** illustrate the portable chair **100** in a set-up condition wherein the chair is manipulated so that a user can sit on the chair. In this condition, the notched cutouts **184** abut against the rail link **170** and rest thereon. When an individual sits in the chair, their weight pressed downward and forces the rear leg sections rearward away from the front leg sections **116** since the front leg sections are fixed by the front leg joints **180**. The notched cut out **184** and the rail link **170** are contoured and oriented such that the rearward movement of the rear leg sections is prevented and the two components lock together. In this manner, the chair provides a sturdy, rigid construction that can support the weight of a user and the user's weight increases the rigidity of the chair. The stop mechanisms **182** in any embodiment preferably use the weight of the user to force the stop mechanism components together, increasing the chair's rigidity.

The backrest link **150**, seat rest link **160**, and rail link **170** also provide lateral structural rigidity to the chair **100**. It will be evident to those skilled in the art that other structural members such as additional cross members or links can be added between the supports or the links to increase the

rigidity of the chair, if so desired. As shown in FIGS. **1, 5** and **6**, a cross-member **194** extends between and interconnects the two rear legs **124** providing additional rigidity to the chair structure.

In the embodiment illustrated in FIG. **1**, the long supports, the short supports, the backrest link, the seat rest link, and the rail link are all separate discrete structural elements that are affixed to one another by a suitable manner. The components can be fastened together utilizing nails, screws, nuts and bolts, staples, adhesives, hook and loop fasteners, dowels, tongue and groove formations, or other such suitable fastening mechanisms. Combinations of the above fastening methods can also be used.

In another embodiment, such as the embodiment illustrated in FIG. **6**, one or more of the components of the chair **100** can be formed as integral unitary structural components. For example, the two long supports **110** and the backrest link **150** can be integrally formed as a single unitary U-shaped structure. The two short supports **112** and the seat rest link **160** can also be formed as an integral unitary structure. The cross-member **194** can also be formed as a part of this unit. Also, the two bottom rails **102** and the rail link **170** can be formed as a unitary integral structure. Regardless of whether the components of the chair are formed integrally or as discrete separate components, the chair is easily assembled as illustrated in FIG. **6**.

The leg pivots **114** and the pivot joints **180** can also vary considerably without departing from the spirit and scope of the invention. The pivots can be loosely mounted fasteners including washers, nuts and bolts or can comprise steel, plastic, nylon or Teflon® elements forming pivot shafts and bearings. The shafts can be secured in any suitable manner, utilizing nuts, cotter, pins, rivets, machine or rolled flanges, or the like. It is imperative that the leg pivots **114** and front leg joints **180** permit relative ease of rotation between the components and yet remain securely fastened.

In the embodiments illustrated in FIGS. **1–6**, the bottom surface **104** of the bottom rails **102** is a curved surface. The portable chair **100** is thereby a rocking chair providing an additional feature without adding any additional parts to the structure. The bottom surfaces **104** of the rails **102** can also be straight, linear surfaces that rest securely on the ground. Such an embodiment would not provide a rocking chair feature.

The components of the chair **100** can vary in shape, size and material structure without departing from the spirit and scope of the invention. The size of the individual components including the length will determine the size and shape of the chair. It is conceivable that the bottom rails can be exceptionally long and that the long supports **1 10** and short supports **112** can be of the same length. Such a construction will define a flexible sling cot or hammock. Such alternative constructions are within the purview of the present invention.

FIGS. **4** and **5** illustrates the portable chair **100** in a completely folded condition. The long supports **110** and the short supports **112** are pivoted about the leg pivots **1 14** so that they are generally parallel to one another. The rear leg sections **124** are preferably pivoted toward the seat back supports **120**. The bottom rails **102** are pivoted about the pivot joints **180** generally parallel with the long and short supports. However, depending on the positioning of the rail link **170**, folding the bottom rails **102** to a completely parallel position may not be possible because the positioning of the rail link may prevent the long and short supports from being received completely between the bottom rails. Positioning of the pivot joints **180** and design shape of the supports and links can easily accommodate a completely parallel folded chair.

In the present embodiment, the short supports **112** are received between and on the inside surfaces **152** of the long supports **110** and can therefore pivot to be completely parallel to and between the long supports. The long supports **110** can be positioned either on the inside surfaces **174** or the outside surfaces of the bottom rails **102**. Further, the short supports **112** can be positioned on outside surfaces **196** of the long supports **110** and yet fall within the purview of the present invention. These alternative constructions of the portable chair **100** will necessitate alternative stop mechanism design and placement in order to prevent the rear leg sections **124** from being displaced when the chair is in a set-up condition as described above.

Referring now to FIGS. **7–10**, a portable table **200** is illustrated and is movable between at least a folded condition, shown in FIG. **10**, and a set-up condition, shown in FIG. **7**, similar to the portable chair **100** described above. The portable table **200** has a tabletop **202** with a top surface **204** and a bottom surface **206**. The portable table **200** also has two opposed and spaced apart leg scissor assemblies that depend generally from below the bottom surface **204**. Each leg scissor assembly has a pair of elongate supports **208, 209** that are of essentially the same length. The elongate supports **208** and **209** are similar in construction and function to the long and short supports **110** and **112** described above for the portable chair. The supports **208** and **209** of each leg scissor assembly intersect one another and are pivotally connected to one another by a leg pivot **114** which is essentially identical to that described above for the chair. Four lower leg sections **210** are defined, one each below the leg pivot **114** on each of the elongate supports **208** and **209**. The elongate supports **208** define two opposed end pivoting upper support sections **212** above the leg pivots **114** that each terminate at a top end **214**. The elongate supports **209** define two opposed and free upper supports **213** above the leg pivots **114** that each terminate at a top end **215**.

A tabletop joint **216** connects the two opposed and pivoting upper support sections **212** near the top ends **214**, one on each scissor assembly, to the tabletop. In the embodiment illustrated in FIGS. **7** and **8**, the two tabletop joints **216** are carried, each on one of a pair of cross members **218** attached to the bottom surface **204** of the tabletop. The cross members **218** in this embodiment extend from a front edge **220** to a back edge **222** of the tabletop, herein termed as such for convenience of description only. The tabletop joints **216** can alternatively be connected directly into opposed side edges **224** of the tabletop or into opposed ends of an alternative transverse cross member (not shown) attached to the bottom surface **204** of the tabletop and extending between the side edges **224**, or perpendicular to the orientation of the cross members **218** illustrated in FIGS. **7** and **8**.

The table **200** also has an optional structural link **226** that interconnects the other two opposed upper support sections **213** adjacent their top ends **215** to add structural rigidity to the leg scissor assemblies. It is apparent that the link **226** is not necessary to provide a table according to the present invention. More than one structural link having any number of orientations and positions can be provided to increase the structural rigidity and stiffness of the table **200**.

The table **200** also has at least one stop mechanism **227** that fixes the tabletop to the top end **215** of the other two opposed and free upper support sections **213**. The table **200**

is similar in construction to the chair **100** in that the free opposed upper support sections **213** are prevented from moving laterally away from the fixed upper support sections **212** when the table is in the set-up condition as illustrated in FIG. **4**. When items are placed on the top surface **204** of the tabletop **202**, the weight forces the stop mechanism **227** to securely hold the table in the set-up condition.

FIGS. **7** and **8** illustrate one embodiment of the stop mechanism **227** for the table **200**.

In this embodiment, the link **226** is connected to a back surface **228** of the supports **209** on the two free upper support sections **213**. A pair of stop blocks **230** are disposed on the bottom surface **204** of the tabletop adjacent the front edge **220** but spaced inward from the structural cross members **218**. A gap **231** is defined between each stop block **230** and the respective cross member **218**. Each gap has a distance that is only slightly larger than the width or thickness of the upper support sections **213**. In this embodiment, the top ends **215** of the upper support sections **213** slide into the gaps **231** between the stop blocks **230** and the cross members **218** until the link **226** abuts against a stop surface **232** on each of the stop blocks **230**. The angle of the stop surface **232** in the present embodiment preferably corresponds to the angle of the link **226** against which it abuts. In this embodiment, the stop blocks **230** and the structural link **226** in combination define a pair of stop mechanisms **227**.

In an alternative embodiment, a continuous cross member or stop block (not shown) can replace the stop blocks **230** and extend across the front edge **220** of the bottom surface **204** of the tabletop **202** and terminate short of the cross members **218**, leaving gaps **231** between ends of the single stop block and the cross members. The continuous stop block defines a continuous stop surface that extends between the two cross members **218**. In either embodiment, the arrangement can be configured so that the top ends **215** of the free upper support sections **213** align with the front edge **220** of the tabletop for a clean, aesthetically pleasing structure.

FIG. **9** illustrates another alternative embodiment of a stop mechanism, as viewed in the direction of the arrow "C", for the table **200** of the present invention. In this embodiment, two L-shaped stop blocks **236** are provided on the bottom surface **206** near the front edge **220** of the tabletop **202**. The L-shaped stop blocks **236** define slots **238** into which the free upper support sections **213** are received. The end surface **240** of each slot **238** provides the stop surface against which the free upper support sections **213** abut when the table is in the set-up condition.

As with the chair construction described above, the stop mechanism **227** can vary considerably without departing from the spirit and scope of the present invention. The free upper support sections **213** can incorporate a separate or an integral element defining a portion of the stop mechanism. The top ends **215** of the free upper support sections can also be varied and provided with a contour that mates with a corresponding element such as a cutout or protrusion provided either on the bottom surface **204** of the tabletop or on one or more structural cross members. The stop mechanism **227** must again prevent the upper support sections **213** of each leg scissor from moving away from the upper support sections **212** when weight is placed on the tabletop. The force instead increases the strength of the interlock at each stop mechanism.

As with the chair construction, the materials, sizes and shapes of the various components of the table **200** can vary considerably without departing from the spirit and scope of the invention. Aesthetically pleasing designs can be provided that will still provide a portable table that can be easily broken down and folded for transport. The elongate supports **208** and **209** can be pivoted relative to one another about the leg pivots **114** in the direction of the arrows "D". The tabletop can be pivoted relative to the supports **208** about the pivot joints **216** in the direction of the arrows "E".

FIG. **10** illustrates the table **200** in a completely folded condition. The elongate supports **208** and **209** of each scissor assembly are pivoted about the leg pivot **114** and folded generally parallel to one another with the free upper support sections **213** pivoted toward the lower legs **210** of the supports **208**. The tabletop **202** is then folded about the pivot joints **216** toward the supports **208** and **209** to be generally parallel with the elongate supports.

The table **200** can also be constructed similar to the chair **100** wherein the several components are either provided separately and discretely and then affixed to one another or provided as integrally formed unitary components. Additionally, the table **200** can be varied to incorporate any number of different types of tabletops including the slat construction illustrated in FIGS. **7–14** or a solid planar construction (not shown). The shape of the tabletop **202** can also vary considerably without departing from the spirit and scope of the invention. The materials used to fabricate the components of the table **200** can also vary and include wood, metal, plastics, composites, and the like.

FIG. **11** illustrates a portable table **300** constructed in accordance with another embodiment of the present invention. The portable table **300** essentially includes a pair of portable tables or table sections, each constructed identically to the portable table **200** as described previously. The two portable tables are hingedly connected to one another and provide a bi-level top surface.

A first or short portable table section **302** has a top surface **204** that is disposed lower than a top surface **204** of a second or taller portable table section **304**. The shorter table section **302** has a pair of leg scissors each being made of a pair of elongate supports **208** and **209** constructed essentially identical to the elongate supports for the table **200** described previously. The second table section **304** also includes a pair of leg scissors each having a pair of elongate supports **208** and **209** constructed identically to the those of the table **200**. The elongate support **208** and **209** of the second table section **304**, however, are somewhat longer than the elongate supports of the first table section **302**. This is to provide the height difference between the two top surfaces **204** of the table sections **302** and **304**.

The stop mechanisms and the folding and unfolding of the table sections **302** and **304** are also essentially identical to that described above for the table **200**. However, the two table sections **302** and **304** can also be folded onto one another. In this embodiment, the first or short table section **302** includes a tabletop **202** having a back edge that faces toward the back edge of the tabletop **202** of the second or taller table section **304**. A planar wall **306** is affixed to the back edge of the tabletop of the shorter table section **302** and extends upward beyond the top surface **204** of the tabletop **202**. One or more hinges **308** are carried at the top edge of the planar wall **306** and are hingedly attached to the back edge of the tabletop **204** of the second or taller table section **304**. In the embodiment illustrated in FIGS. **11–14**, a separate connection element **310** is attached to the back edge of the tabletop of the second table section **304** wherein the hinge or hinges **308** are carried on the connection element **310**. The first and second table sections **302** and **304** can be

pivoted relative to one another about the hinges **308** so that the front surfaces **312** and **314** of the wall **306** and the connecting element **310**, respectively, confront parallel to one another. The height of the planar wall **306** between the top surface **204** of the tabletop of the first table section **302** and the pivot axis of the hinges **308** are such that the two tabletops **204** of the corresponding table sections **302** and **304** also confront parallel to one another as illustrated in FIG. **13**. The height of the planar wall **306** permits the two tabletops to rest flush against one another when the two table sections **302** and **304** are folded relative to one another.

FIGS. **11** and **12** illustrate the table **300** wherein each of the table sections **302** and **304** are unfolded to a set-up condition similar to that described for the table **200**. To completely fold the table **300** as illustrated in FIG. **14**, the two tabletops **202** of the table sections **302** and **304** are folded to confront one another as illustrated in FIG. **13**. The leg scissors are then collapsed as described above for the table **200** for each of the table sections **302** and **304** including the elongate supports are parallel with their respective tabletops. The table **300** as illustrated in FIG. **14** can then be easily transported in its folded condition.

The exemplary embodiments described herein are not intended to limit the present invention. The embodiments are provided herein to illustrate the various aspects of the present invention. The scope and spirit of the present invention is to be limited only by the appended claims.

I claim as my invention:

1. A portable chair moveable between at least a folded condition and a set-up condition, the portable chair comprising:

two spaced apart and opposed bottom rails each having a bottom surface, a forward end, and a rear end;

two spaced apart and opposed leg scissors, each leg scissor including a first support and a second support pivotally attached to one another at a leg pivot, the first support of each leg scissor defining a front leg section below the leg pivot terminating at a bottom end and a seat back section above the leg pivot terminating at a top end, and the second support of each leg scissor defining a rear leg section below the leg pivot terminating at a lower end and a seat front section above the leg pivot terminating at an upper end;

a back rest link interconnecting the seat back sections of the first supports;

a seat rest link interconnecting the seat front sections of the second supports;

a rail link interconnecting the bottom rails near the rear ends;

a front leg joint pivotally connecting each front leg section near the bottom end to the corresponding bottom rail near the forward end;

a flexible sling suspended generally between the first supports and the second supports with one end of the sling disposed near the top ends of the first supports and an opposite end of the sling disposed near the upper ends of the second supports; and

a notch formed integrally in the lower end of each rear leg section of each second support, each notch removably bearing directly against and receiving the rail link therein when the chair is in the set-up condition.

2. The portable chair according to claim **1**, wherein the back rest link and the two first supports are each a discrete structure and the back rest link is affixed to the two first supports.

3. The portable chair according to claim **1**, wherein the back rest link and the two first supports are integrally formed as a single unitary structure.

4. The portable chair according to claim **1**, wherein the seat rest link and the two second supports are each a discrete structure and the seat rest link is affixed to the two second supports.

5. The portable chair according to claim **1**, wherein the seat rest link and the two second supports are integrally formed as a single unitary structure.

6. The portable chair according to claim **1**, wherein the rail link and the two bottom rails are each a discrete structure and the rail link is affixed to the two bottom rails.

7. The portable chair according to claim **1**, wherein the rail link and the two bottom rails are integrally formed as a single unitary structure.

8. The portable chair according to claim **1**, wherein the back rest link and the two first supports are integrally formed as a single unitary structure, wherein the seat rest link and the two second supports are integrally formed as a single unitary structure, and wherein the rail link and the two bottom rails are integrally formed as a single unitary structure.

9. The portable chair according to claim **1**, wherein the bottom surfaces of the bottom rails are arcuate defining a rocking surface for the portable chair.

10. The portable chair according to claim **1**, wherein the first supports, second supports, and the seat rest, back rest and rail links are molded from a thermoplastic material.

11. The portable chair according to claim **1**, wherein the first supports, second supports, and the seat rest, back rest and rail links are fabricated from wood.

12. The portable chair according to claim **1**, wherein the seat rest, back rest and rail links are each connected, respectively, to the second supports, first supports and bottom rails in a manner comprising at least one of an adhesive material, threaded fasteners, nails, a tongue and groove arrangement, staples, and a dowel arrangement.

13. The portable chair according to claim **1**, wherein the flexible sling is suspended from the seat rest link and the back rest link by its opposed ends.

14. The portable chair according to claim **1**, wherein the back rest link is connected between the first supports adjacent the top ends.

15. The portable chair according to claim **1**, wherein the seat rest link is connected to the upper ends of the second supports.

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